



# Space Stations of the Future

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# Office of Technology, Policy and Strategy (OTPS)

## Overarching Goal – Help Support the *Why, What,* and *How* of NASA

Working in collaboration across NASA and the broader space community...

...Provide NASA leadership with data- and evidence-driven advice to develop and shape

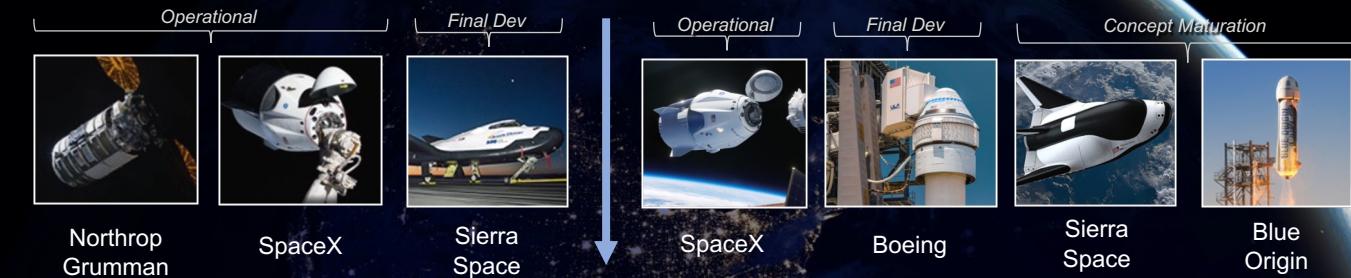
- policy (what NASA should do and why),
- strategy (how should NASA do what it does), and
- technology (how to best develop/leverage the right technology)



# Vision for LEO Economy: A World of New Possibilities

- NASA is one of many customers in a robust low-Earth orbit (LEO) economy
- Commercially-owned and operated transportation for cargo and crew
- Commercially-owned and operated LEO destinations that are safe, reliable, and cost-effective
- Regular production, distribution, and trade of goods and services
- Ongoing research and science activities including a LEO National Lab
- Continuation of human spaceflight exploration objectives
- Sustained presence and U.S. leadership in LEO

## COMMERCIAL CARGO & CREW TRANSPORTATION



## COMMERCIAL LEO DESTINATIONS

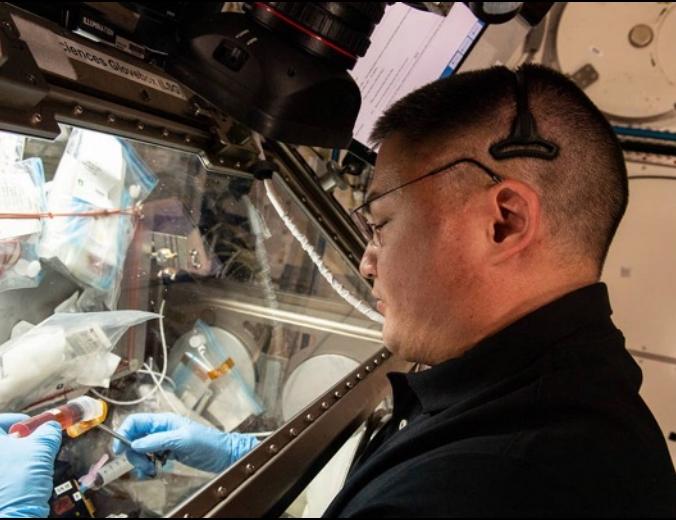


## More Elements of a Strong LEO Economy



# NASA's Future LEO Needs

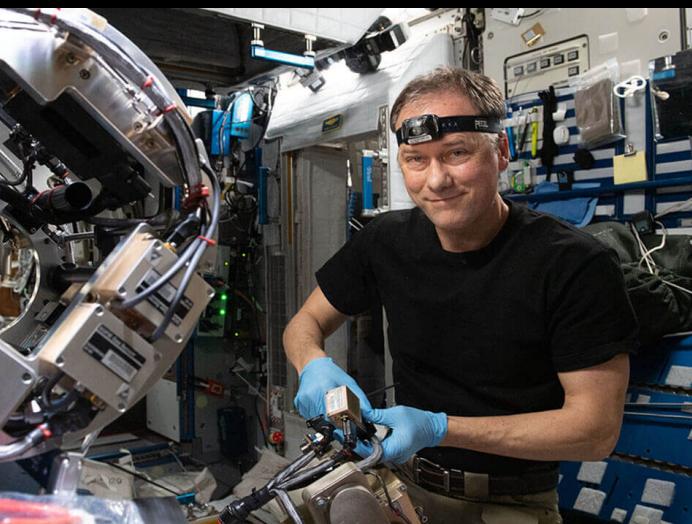
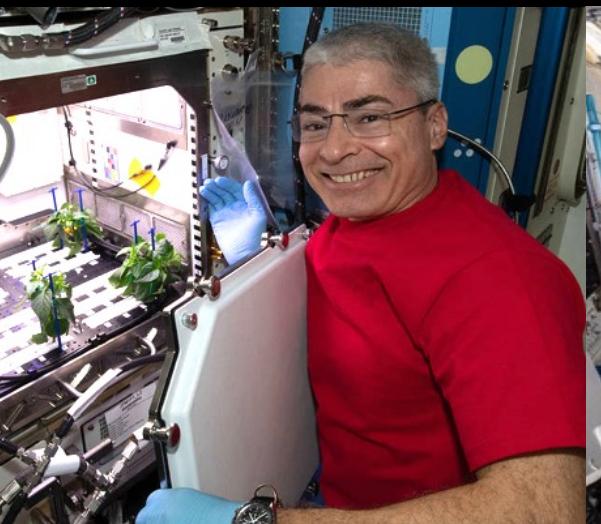
- Continuous accommodations and training for at least two crew members
- The ability to support a national orbiting laboratory
- Conducting approximately 200 investigations annually to support human research, technology demonstrations, biological and physical science



Science



Human Research



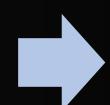
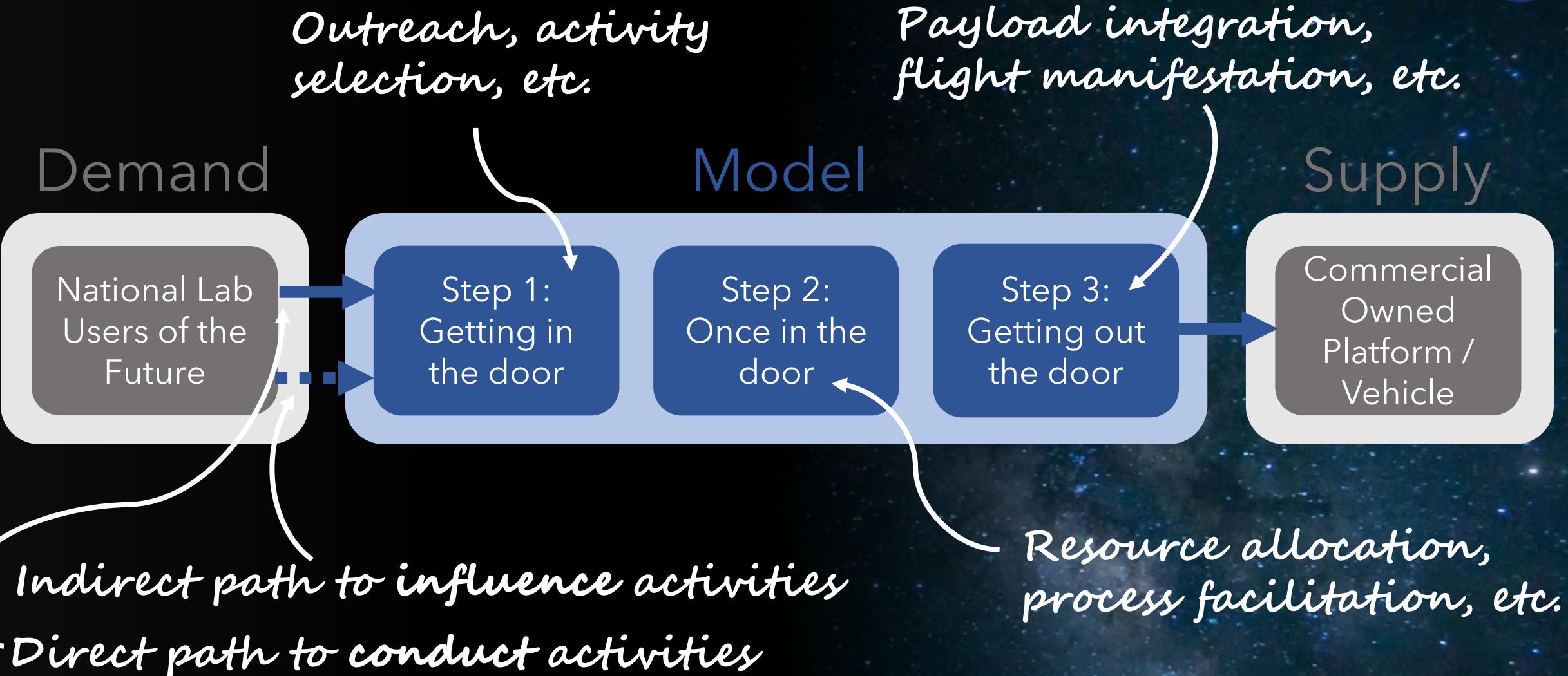
4 Physical and Biological Research

Technology Demonstrations

Crew Accommodations and Training

National Lab Services

# Model: Connect Supply to Demand



OTPS study to inform NASA's options for facilitating government funded activities in the post-ISS LEO ecosystem.

# Models for Facilitating Government-Funded Activities in the Post-ISS LEO Ecosystem

**Goal:** Identify potential models to facilitate government-funded or subsidized activities in a National Lab on a commercial LEO platform

**Method:** Scenario-driven analysis to rate distinct models based on how they may perform in the 2030 timeframe

**Findings:** Six illustrative models identified with more to less government oversight that can be further adjusted to meet leadership priorities



## Model 1: Anchor Tenant

Long-term agreement for leasing space on a commercial platform



## Model 2: Government Research Broker

Customizable research missions using both transport vehicles and CLDs



## Model 3: Innovation Campus

Modern terrestrial campus with workforce focus



## Model 4: Matchmaker

Neutral third party connecting users to platforms



## Model 5: Institute Network

Network of separate but related efforts to enable commercial scaling and U.S. leadership



## Model 6: Fee for Service

Free market approach with coordinated grants and data/service buys

## Model Attributes



Infrastructure



Stakeholder roles



Process for access



Agreements between users & providers

## Community Values



Ability to meet NASA's needs



Adaptability



Opportunity for collaboration



Market sustainability



Equity & accessibility